

THE INVENTION CLAIMED IS

1. A dielectrophoresis separator apparatus for separating target materials from other materials in a flow of said target materials and said other materials, comprising:

a first trap adapted to receive said target materials and said other materials,

said first trap having electrodes arranged generally parallel to said flow of said target materials and said other materials, and

a second trap adapted to receive said target materials and said other materials,

said second trap having electrodes arranged generally transverse to said flow of said target materials and said other materials.

2. The dielectrophoresis separator apparatus of claim 1 including a source of alternating voltage operatively connected to said electrodes arranged generally parallel to said flow of said target materials and said other materials in said first trap.

3. The dielectrophoresis separator apparatus of claim 1 including a source of direct current operatively connected to said electrodes arranged generally parallel to said flow of said target materials and said other materials in said first trap.

4. The dielectrophoresis separator apparatus of claim 1 including a source of alternating voltage operatively connected to said electrodes arranged generally transverse to said flow of said target materials and said other materials in said second trap.

5. The dielectrophoresis separator apparatus of claim 1 including a source of direct current operatively connected to said electrodes arranged generally transverse to said flow of said target materials and said other materials in said second trap.

6. The dielectrophoresis separator apparatus of claim 1 including a source of alternating voltage operatively connected to said electrodes arranged generally parallel to said flow of said target materials and said other materials in said first trap and a source of direct current operatively connected to said electrodes arranged generally transverse to said flow of said target materials and said other materials in said second trap.

7. The dielectrophoresis separator apparatus of claim 1 including a source of direct current operatively connected to said electrodes arranged generally parallel to said flow of said target materials and said other materials in said first trap and a source of alternating voltage operatively connected to said electrodes arranged generally transverse to said flow of said target materials and said other materials in said second trap.

8. A dielectrophoresis separator apparatus for separating target materials from other materials in a flow of said target materials and said other materials, comprising:

a first trap adapted to receive said target materials and said other materials, said first trap having electrodes arranged generally parallel to said flow of said target materials and said other materials,

a second trap adapted to receive said target materials and said other materials, said second trap having electrodes arranged generally parallel to said flow of said target materials and said other materials,

a third trap adapted to receive said target materials and said other materials, said third trap having electrodes arranged generally parallel to said flow of said target materials and said other materials, and

an additional trap adapted to receive said target materials and said other materials, said additional trap having electrodes arranged generally transverse to said flow of said target materials and said other materials.

9. The dielectrophoresis separator apparatus of claim 8 including a source of alternating voltage operatively connected to said electrodes arranged generally parallel to said flow of said target materials and said other materials in said first trap, said second trap, and said third trap.

10. The dielectrophoresis separator apparatus of claim 8 including: a source of alternating voltage operating at around 30 Hz, operatively connected to said electrodes arranged generally parallel to said flow of said target materials

and said other materials in said first trap, a source of alternating voltage operating at around 30 KHz, operatively connected to said electrodes arranged generally parallel to said flow of said target materials and said other materials in said second trap, and a source of alternating voltage operating at around 30 Mhz, operatively connected to said electrodes arranged generally parallel to said flow of said target materials and said other materials in said third trap.

11. The dielectrophoresis separator apparatus of claim 10 wherein said first trap, said second trap, and said third trap have a different length.

12. A dielectrophoresis separation method for separating target materials from other materials from a flow of said target materials and said other materials, comprising the steps of:

flowing said target materials and said other materials through
a first trap,

energizing in said first trap electrodes arranged generally parallel to
said flow of said target materials and said other materials,

flowing said target materials and said other materials through a
second trap, and

energizing in said second trap electrodes arranged generally
transverse to said flow of said target materials and said other materials.

13. The dielectrophoresis separation method of claim 12 including
energizing a source of alternating voltage operatively connected to said

electrodes arranged generally parallel to said flow of said target materials and said other materials in said first trap.

14. The dielectrophoresis separation method of claim 12 including energizing a source of direct current operatively connected to said electrodes arranged generally parallel to said flow of said target materials and said other materials in said first trap.

15. The dielectrophoresis separation method of claim 12 including energizing a source of direct current operatively connected to said electrodes arranged generally parallel to said flow of said target materials and said other materials in said first trap, and energizing a source of alternating voltage operatively connected to said electrodes arranged generally transverse to said flow of said target materials and said other materials in said second trap.

16. A dielectrophoresis separation method for separating target materials from other materials from a flow of said target materials and said other materials, comprising the steps of:

flowing said target materials and said other materials through
a first trap,

energizing in said first trap electrodes arranged generally parallel to
said flow of said target materials and said other materials at around 30 Hz,

flowing said target materials and said other materials through
a second trap,

energizing in said second trap electrodes arranged generally parallel to

flowing said target materials and said other materials through
a third trap,

flowing said target materials and said other materials through an additional trap, and

energizing in said additional trap electrodes arranged generally transverse to said flow of said target materials and said other materials.